



Proceedings of the National Workshop on Agroecology Transition 5th and 6th May 2016, Hanoi, Vietnam



Supported by:



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I. WORKSHOP WRAP UP

1. Introduction

The dynamic of the participation by stakeholders in the 2 days' workshop has been found very forceful; debating on the different understanding on what Agroecology (AE) means to them and what type of current practices would fall under the AE. Finally the workshop has managed to bring about some common principles, common understanding and common expectations of the stakeholders about AE. There are still some works to do in order to define in an encompassing way AE but it is on the right track.

The workshop has provided the stakeholders with an opportunity to start discussing together on the country's dilemma on the policy between the input intensive export oriented agriculture and the sustainable and environmentally sound agriculture. A lot of ideas shared by different stakeholders not only on the country condition of agriculture practices that are driven and supported by the government and that are actually practiced by farmers. It has enabled to start knowing each other and to present the regional dynamic that ACTAE intends to support. It also allowed identifying some key challenges faced by farmers and that are hindering broader promotion of agroecology.

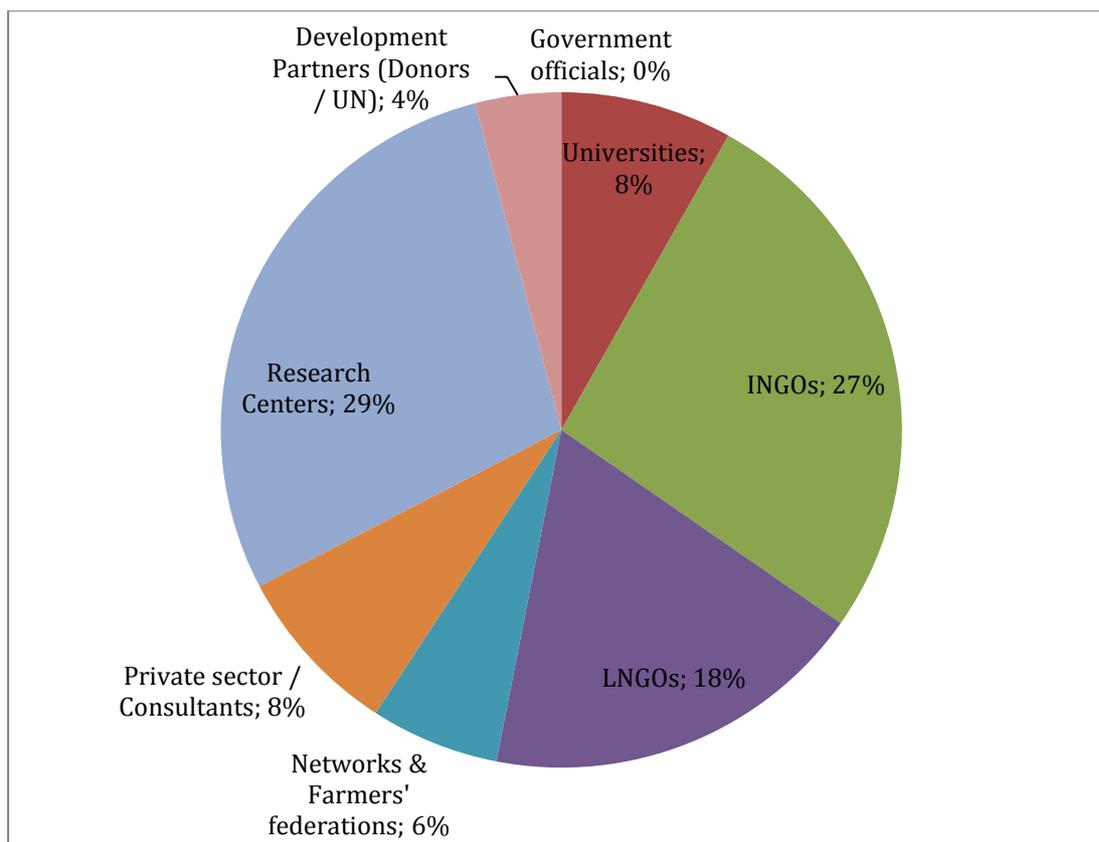
This 1st national workshop was instrumental for the future to lay down the foundations of a national Vietnam network that will partake in a regional Agroecology Learning Alliance, bringing together all stakeholders active in the field of AE.

It was the first of its kind and it is expected that others will follow to keep on networking, sharing experiences and best practices and ultimately promote AE transition in the Mekong region.

2. A short account of the 2 days' workshop

It was the 3rd national multi-stakeholder workshop addressing AE Transition in the Mekong Region, after the same in Myanmar and in Cambodia. It was held on the 5th and 6th of May 2016 in Hanoi. It was organized by CIRAD, GRET and PHANO as part of the inception phase of ACTAE project, funded by the French Agency for Development (AFD).

It brought together over **49 specialists and practitioners** from government agencies, research and universities national and international NGOs, private sector, and donors actively working on sustainable agriculture sector in Vietnam (see participants list in annex).



It aimed at sharing knowledge, information and experiences between agricultural development stakeholders, more especially through:

§ The presentation of ACTAE program with its 2 components:

- Conservation Agriculture Network in South East Asia (CANSEA)
- Agroecology Learning Alliance in South East Asia (ALiSEA)

§ The discussions of initial findings from the 1st study carried out in the framework of ALiSEA about *Agroecological Farming Innovations: Case studies in Hoa Binh and Lam Dong province, Vietnam* (report available on ALiSEA website: <http://ali-sea.org/aliseaonlinelibrary/agroecological-farming-innovations-case-studies-in-hoa-binh-and-lam-dong-province-vietnam/>)

§ The introduction to the online ALiSEA knowledge management and experience sharing platform on Agroecology (<http://ali-sea.org/>) and its Facebook page (<https://www.facebook.com/AgroecologyLearningAlliance/>)

§ The presentation of 11 case studies from various stakeholders

§ Working groups building upon lessons learnt from the case studies and ACTAE presentations resulting in

- A brainstorming about main agriculture challenges faced by farmers and formulation of recommendations for promoting agroecology
- A shared understanding and common vision of agroecology and a sound and accurate translations (in national language) of the concept of agroecology

- A preliminary brainstorming about governance and structure for a future national platform addressing agroecology transition

2.1 Day 1: Setting the stage

Agriculture at a crossroad and the urgent need for a shift towards agroecology

The first day of the workshop provided room for presenting few overall reflexions about agroecology in general and some concrete illustrations of past / ongoing agroecological initiatives in Vietnam. It provided some lessons learnt and supported collective discussions regarding agroecology promotion and dissemination.

First of all, to have a shared understanding regarding why agroecology is necessary today, it was reminded the Green Revolution's limits and negative impacts, the increasing importance of climate change impact and the current ecological crisis that agriculture and small holders in particular are facing.

These elements call for alternative cropping systems, and agroecology provides convincing and evidence-based alternatives to the current agrifood systems.

It was mentioned that agroecology seeks to produce diversified and high-quality food, reproduce – or even improve – the ecosystem's fertility, limit the use of non-renewable resources, avoid contaminating the environment and people, contribute to the fight against global warming.

In addition, it was emphasized on the fact that agroecology is not new, relying on empirical learning processes and knowledge transfer from generation to generation. Meanwhile, it can be also seen as a modern approach for agriculture, building on both traditional empirical knowledge and scientific research for a better understanding and use of ecological processes operating in the farming systems.

Thus, agroecology provides innovative concept and approaches capable of tackling issues related to food security / sovereignty, and mitigation & adaptation to climate change

In line with the need for concept clarification, historical principles of agroecology (Altieri and al. 2005) were reminded since they provide a sound basis for addressing most of technical issues related to food production

- **Enhanced recycling of biomass**, optimizing nutrient availability and balancing nutrient flows.
- **Securing favorable soil conditions** for plant growth, particularly by managing organic matter and enhancing soil biotic activity.
- **Minimizing losses** due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover
- **Species and genetic diversification** of the agro-ecosystem in time and space.
- **Enhanced beneficial biological interactions** and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services.

To put it in a nutshell and to quote some of the work from A. Wezel (2009), Agroecology can be seen as a set of practices, a scientific discipline and a social movement.

Quite a lot of farming innovations that are agroecological practices found in the region and in Vietnam: quick stakeholder mapping and few case study based illustrations

A presentation from Dr Pham Van Hoi, independent consultant hired by ALiSEA, of his main findings regarding Vietnam agroecology stakeholder mapping and policy framework review, introduced a session of the workshop dedicated to take stock of the multitude of agroecology initiatives implemented in Vietnam.

6 sets of practices most commonly found have been identified during a feasibility study conducted by GRET in 2013 across the Mekong Region: System of Rice Intensification (SRI), Integrated Pest Management (IPM), Organic Agriculture (OA), Integrated Farming System (VAC as its acronym in Vietnam), Conservation Agriculture (CA), Agroforestry (AF).

As far as Vietnam is concerned, although most of these practices maybe seen implemented across the country by some farmers there is little direct support to them by the government. The present policy and government support conditions for the sets of AE can be described as follows:-

- AF : Policy shift from more mandatory to more flexible and selective regarding AF practices
- IPM : Lot of efforts & investments were taken in the 1990s and 2000s but few IPM principles have been widely adopted by farmers
- OA: VietGAP has proved with a very modest impact and no momentum at local level from which VietGAP could be sustained and/or further developed. Many farmers are after paying costs for their dependence on chemical inputs.
- IF: Only two policies found related to establishment of VACVina and unclear efforts of VACVina on AE promotion. VAC is of tradition approach
- CA : No concrete CA-targeted policies is identified
- SRI : No higher level legal documents issued but some decision documents and guidelines supported by MARD and provincial level government

In general, except for SRI government does not support much in any other AE sets of practices. In fact, it is INGOs, LNGOs, and Research/Academia institutes that are promoting AE when farmers start facing problems in their crop yield reduction and land degradation or getting new market opportunities that demand the practices of OA and IPM.

In fact, existing impressive AE practices have been developed or readapted by individual farmers mostly after paying costs for their dependence on chemical inputs. However, those locally rooted farming innovations have not yet paid attention by governments. AE innovations have been rather limited to close-surrounding communities. It is likely that such local level innovative AE practices will expand slowly in future because there is an increasing pressure for changes towards AE to save production increasing costs and resources and increasing demand for AE products for new market opportunities

At the same time, as farmers have a more secure feeling on land ownership despite legally indicated in the government Land Law, governments, research institutions and NGOs can work more to boost this expansion process effectively faster. But all these support mechanisms may vary according to the crops and to the regions.

Regarding policy implications for future AE development, better awareness of policy makers on AE practices promotion and linkages AE practices and agricultural economic return and environment benefits are needed. This can be established by allowing to develop a free information dissemination system; by raising public awareness on problems and opportunities including AE practices; by practicing more participatory policy making process through which policy makers would be better informed with the actual field situations and AE innovations that can be integrated into policy.

Most of the remarks to the presentation of the consultant were addressing issues related to:-

AE concept

- There is a need to advocate what AE exactly means, what benefit it can provide...
- Still some confusions in the meaning of AE: - VAC? Green Agriculture? Sustainable Agriculture?
- In this regards, it is important to have a common understanding about AE and to make sure that all stakeholders act together.
- At the moment, it is more a fragmented approach which results in low visibility and little influence on the policy makers.
- A 3 steps' approach should be used: Concept clarification → illustration / documentation → dissemination

AE practices

- VAC is still having some shortcomings because the producers need to be responsible for the products they sell in the market for consumers.
- VAC dissemination is being limited because VACvina is more a campaigning organization rather than an operational organization
- Farmers used to practice AE such as applying organic pesticides to their crops, but now after too much uses of chemicals, it has led to pesticide resistance problems.
- There is a needs to investigate more biofertilizers and biopesticides
- Vietnam has already alternative models for sustainable farming but there is little dissemination, lack of information, trainings at farmer level

Policies

- Presently the government policy is of top down approach. Therefore the weakness of the policy made is its little attention to the small farmers and thus the actual benefits of crop production do not go to small farmers. The successful AE techniques practiced by small farmers that are supported by NGOs and research institutes need to be seen by local administration through the direct involvement of them in the project implementation.
- One of the weaknesses of Vietnam policies addressing agriculture sector is that it overlooks small scale farmers. Benefits and margins often go to middle men or large scale farmers. Importance to develop policies dedicated to small holders

- Policies are very much focused on market approach rather than promoting AE. It supports mostly intensive agriculture production and tends to lead to depletion of natural resources.
- Sustainable agriculture should be the driving force of Vietnam development.
- There is an important need for developing appropriate policy framework supporting AE and sustainable agriculture
- Liberation of farmers to grow what they want is needed to promote AE. (Farmers are now driven by government to grow the crops for their export)
- Research findings should reach the government (policy makers)
- In depth studies are needed for coming up with policy formulation and identification of model that can be replicated.
- Why farmers in Vietnam are poor? What are the impacts of the policies pushing for making Vietnam the food storage of the world?
- It is important to address the true cost of rice production in Vietnam → production efficiency is questionable
- It would be good to learn from outside experiences such as the feeding program in Brazil that relies on small holder organic production

In relation to the 5 historical principles of agroecology (presented above) and/or to the 6 most commonly found “set of practices” in the Mekong region, 11 case-studies were presented by various stakeholders according to 3 main topics (see detail list of case studies in annex):

- Setting the stage: illustration of challenges & policy making for AE promotion (3 case studies)
- Marketing AE products: example of certification process (1 case study)
- Experience sharing from the field: examples of AE practices and approaches implemented in Vietnam (7 case studies)

In terms of diversity of stakeholders, there were 5 presentations from Government representatives (from universities and research centers), 2 from LNGOs representatives, 4 from INGOs and International research center representatives.

Such presentations were instrumental to feed the collective brainstorming on Day 2. In addition, they stimulated some preliminary exchanges between the different stakeholders.

Several comments / questions were raised during the presentation of the case studies:

- Ecology and Economics can coexist in AE as presented by some participants.
- Although most of the research findings are positive and favors the adoption of AE by other farmers, the scalability of such successful and sustainable practices is lacking.
- Cultural values should also be taken into consideration while promoting / disseminating innovative AE practices
- Farmers are innovative and should be more supported by scientists (they should work together)
- Long term vision and short term benefits need to be differentiated. The consideration of sustainability needs to include long term benefits with social benefits too. At least 1% of GDP should go for environmental benefit by other sectors’ support in paying for environment). In order to promote AE successfully by the government’s extension system, it needs to increase the salary of the extension workers.

2.2 Day 2: Working groups and brainstorming about issues and challenges in agriculture production and the dissemination of AE practices in Vietnam

Addressing agriculture challenges and agroecology principles

2 working groups were set up gathering stakeholders from different nature (Government officials, LNGOs, INGOs, Private Sector, Research, Academia) in order to brainstorm about challenges currently faced in agriculture and provide recommendations:

- Group 1 focused on Agriculture production (soil fertility, pest and disease management / control, water management, access to good quality seeds...) & Dissemination of innovations / extension approaches
- Group 2 focused on Access to market (certifications, incentives for quality product) & Policy support / making

The following section presents the main feedbacks from the different working groups

1. Agricultural production

Overall, it was mentioned that there is a wrong/inadequate or even poor knowledge regarding AE. This is especially the case for soil, weeds and natural enemies' management. Several examples / issues were pointed out to highlight this “wrong/inadequate” agriculture production development perspective:

- Main efforts are dedicated to increase yield with the belief that more yield needs more inputs and/or more crops/year. This mainstream approach is detrimental to better alternatives that would managed resources more efficiency and sustainably.
- Mainstream production support considers that soil is an “idle” system (like substrate), with researches focusing on things above soil surface
- Pressure from the central level for increasing yield, commercialization... is very high for local levels resulting in resources mobilizations for annual wish-list made at central levels
- Weak legal system allowing availability of counterfeit fertilizers/pesticides on local markets. This tends to increase pressure on farmers who have to increase uses of inputs (and pay more costs) since efficiency of counterfeit products is usually very low
- Little state coordination for farming production resulting in shortage of certain products (with high price for consumers); surplus of certain products (without market outlets). In the end, this leads to economic missed opportunities for Vietnam

Main challenges faced by farmers were briefly summarized as below:

Soil fertility:

- Land degradation due to mono-cropping, chemical uses, reduced returns of biomass (incl. manure/composts); Salinity intrusion due to intensive farming in coastal line lowland area

Pests & diseases

- Overuses of chemical fertilizers/pesticides → resurgence of pests & diseases but also economic imbalance

Water

- Shortage of water on the uplands, and logging in the lowlands
- Lack of capacity building /awareness about natural resource management, upstream forest management

Seeds

- Seed quality is not controlled and policies sometimes conflicting with the need to have local good quality seeds)
- There is no protection on indigenous seeds in the law
- Decrease of biodiversity of crops (genetic diversity)

2. Dissemination of innovations / extension approaches

As far as dissemination / extension approaches are concerned, the group identified a broad range of challenges such as:

- Formal & informal extension exists mainly in the form of short training. Usual government extension trainings are of 1-day program with no follow up support to farmers/participants afterward
- Extension staff are under pressure of (or directed by) plans made at the central levels, or chemical companies. In addition, the number of extension staff is very low with little policy support to work effectively. As a consequence, private companies often use extension staff to advertise their products to farmers instead of giving an unbiased advice.
- The extension agent may teach farmers about the different rates and ratio of NPK but in the market, there are a few compound fertilizers with fixed ratio only.
- The technical information disseminated in the mass media and newspaper is very weak and mostly focusing on conventional farming practices. Despite the many government TV channels, they are not made use for farmers' knowledge improvement. Farmers rely more on private actors for information / knowledge for their daily farming activities...
- The production systems (and the extension system that are supporting them) are productivity driven rather than environment driven

Question: Is extension system still needed? If yes, what restructure is needed for better supports provided to farmers?

To support government in their policy change towards AE transition and dissemination of AE practices, many of the findings need to be translated into the local language including these workshop proceedings.

3. Access to market (certifications, incentives for quality product)

Market management support for high quality produce is still lacking as there can be an increased cost of production for AE or OA products. The constraints to promote the AE products are the **certification for quality assurance** to develop the consumers' trust, confidence in the credibility and legal enforcement of quality assurance.

For Vietnam, the entry point for such certification may be **PGS** or **VietGAP**. For small holders, PGS is more suitable due to low membership fee and the charge calculated according to volume sales. In addition, it enables collective bargaining power.

At the contrary, in VietGAP, high upfront investment is needed implying very often for small or medium holders a need for project sponsorship leading to aid dependency.

In fact, for agro-ecological products, one can argue that it may not be practical to apply certification as the process is cumbersome for the farmers. It could be better to certify / standardize working and management principles to apply for a specific group of commodity (alongside with the 6 main set of AE practices identified in Mekong Region).

As far as **incentives for quality product** are concerned, few elements were raised:

- Farmers' ability to sell their produce is crucial
- Two-pronged strategy from beginning to i) build producers' capacities to meet market demands and ii) identify specific business products
- Importance to connect with companies to develop a long-term social marketing partnership (or social enterprise) to satisfy initially short-value chain, local/provincial markets then scale up in mid-term and long-term
- Unique values of AE-grown products should be recognized and promoted
 - Farmer's health
 - Farmer's income
 - Consumer health
 - Environmental value

One of the recommendations made to better address market access and AE product promotion is to undertake a baseline study on consumer's demand for AE produce and preference of quality assurance (communication technology/innovations).

4. Policies enabling adoption of AE

This issue was intensively discussed by the working group and led to several observations and recommendations:

- Importance to mainstream a "Landscape Governance" shifting the focus from farm plots to landscapes
- Participatory planning necessary for establishing AE zoning
- To implement cluster business / feeder business: use network to expand production scale, diversify products, responsiveness to market demand

- To advocate for including AE concept in MARD's restructuring orientations in order to ensure/increase legality of AE. Such advocacy process could be done with the involvement of different stakeholders:
 - Crops Production Department, Livestock Department to recognize PGS
 - Via networks: CIPFEN, Farmer Forum/Coalition for Farmer Rights and Sustainable Agriculture
 - INGOs: VECO, OXFAM...
- To develop some sort of crop insurance scheme with payment applied for the whole AE region (public goods, collective benefit)
- To establish an AE network for Vietnam which could be a national platform aiming at sharing knowledge and experience and fostering policy dialogue (ALiViet = Agroecology Learning alliance Vietnam)
 - PHANO could potentially be the initial host
- To better define what would be covered by AE produces:
 - It should include crops, livestock, fisheries and forestry products
 - GMO should be excluded because of its potential damage on biodiversity and local gene pool
- To identify financing options in order to support AE promotion and dissemination:
 - To make use of existing programs, initiatives targeted smallholder farmers (e.g. via Farmer Union, Women Union etc.)

Linking identified challenges/constraints faced by smallholders, we can identify few overall **key agroecology principles** that could offer some way forwards such as:

1. **Better use of local and available resources:** soil fertility, seed, cropping system
 Need for considering natural resources as **living services providers** (with a certain carrying capacity, instead of no limit for exploitation)
 Mainstreaming **sustainable food security** through better use of renewable resources (solar, natural enemies...) and decreased dependency on external inputs
2. **Sustainability:** develop long term approach for balanced ecosystem
3. **Adaptability and flexibility to local context:** agroecology practices should NOT be implemented as tool kit but need extension workers to adapt their recommendations
4. **Farmers first:** at the center of the decision by capacity building reinforcement (knowledge intensive), technologies development, empower them to carry an approach, to get organize to carry collective action
5. **Enhance diversity** in terms of economic and ecological aspects in order to foster resilience
 Importance to maintain diversity on the farm (no mono-cropping or intensive animal raising) and to have a holistic approach to ensure a sound nutrient cycle in the whole farm system

Agroecology approach supports advocacy for changing behavior from farmers to policy makers level and encourages building linkages among stakeholders (such as between farmers and academia for instance).

5. AE Definition:

Most participants agreed that key AE principles were in line with the follow concepts:

- Sustainable resource management
- Environment protection
- Ensured food security and food safety
- Social equity

Several definitions for AE were provided highlighting the need for clarification and for a shared and inclusive definition. It was mentioned for instance that in Vietnam, there is often confusion between Agroecology and Ecological Agriculture. In addition, many words exists (safe or clean agriculture, organic agriculture, agroecology...) so it is needed to clarify and identify a way to define AE that would be understand by everyone. In this regards, it was mentioned that it is needed to “Vietnamizing” the concept of AE for a better understanding by everyone, from farmers to consumers including policy makers.

Hereafter are some of the definitions that were mentioned:

- AE is a scientific system in line with natural resource management
- AE is an agriculture that maximize ecological processes
- AE is an agriculture that follows principles that supports ecosystem functioning
- AE is a farming system with efforts in minimizing external input uses

Addressing governance and structure features for ALiSEA Vietnam

✓ **Experience sharing on past and current involvement in existing networks**

The discussion highlighted the need to clarify the different terminologies = forum, network, platform, learning alliance.

What is ALiSEA?

- A Network / platform (both terms are synonymous)
- A learning alliance as a group of people with different background, sharing same goal, interested to learn and share among each other
- A forum as public open space to allow free discussion

In this session, participants have discussed on what a platform/network means for them. They identified what/which network already existed in relation to AE and to which either them as individual or their organization was participating.

Several existing initiatives were mentioned such as:

- PGS (organic and safe vegetable) and SRI have been already setup national networks (although mostly informal, especially for SRI). As for SRI network, there is the intention to build upon the national network and to connect with existing initiatives across the Mekong region to create a Mekong SRI network. Few regional meetings have already taken place.
- Vietnam Farmers’ Cooperation Forum includes over 300 cooperatives that could be related to AE products
- For VAC, there are already 15 members who are from NGOs in Vietnam that went to Cambodia to share the country’s experience on VAC with other four countries where they have proposed to set up a seed bank network for VAC development.

- CIAT also mentioned their Cassava IPM network where 15 institutions in the network are helping on mutual learning and promotion of biological control of pests across 8 countries.
- Towards Organic Asia is a regional network (6 countries) that includes 2 Vietnam organizations (SPERI and Ecolink)
- CIFPEN (Civil Society Inclusion in Food Security and Poverty Alleviation Elimination Network) whose secretariat is done by CCRD. It is a member of the ASEAN Food Security Network. They organized exchanges at regional level (in Cambodia last year)
- SRD is part of Pesticide Action Network-Asia and the Pacific (PAN-AP): information and data collected through PAN-AP could be shared with ALiSEA members
- Vietnam National Farmer Union (VNFU) is part of Asia Farmer Association (AFA) for promoting sustainable farming
- NOMAFSI is part of CANSEA and sets up a farmers' network of over 40 demonstration sites
- CASRAD is the focal point for family farming issue on behalf of MARD
- Network on coffee fair trade in the Central Highlands (cooperatives supported by CASRAD)
- There was suggestion to setup organic rice network for Myanmar, Thai, Cambodia and Laos too.

In addition, there are a lot of research works done by many institutes in different projects in Vietnam but with no network to share the findings among the institutes and no mechanisms for post project sustainability of the work and the support. To date it is more projects centered / driven rather than included in a form of network.

It seems that there are two challenges for networking setup: - (1) people/stakeholders who are implementing their agriculture projects/research are too busy in their own work; (2) there is no funding for the operation networking.

Beyond national and regional network, it was mentioned also some global networks such as the International Organization for Biological Control (<http://www.iobc-global.org/>). There is a need to reach out to such global networks and to bring them in Vietnam.

Overall, although there is a wide diversity of existing networks in Vietnam, participant highlighted the fact that there were little interaction between them and somehow a need of a national forum / platform that would create a place for all AE approaches. High interest was expressed for instance from the Thai Nguyen University in order to link students with development partners.

It was also mentioned that there is little AE knowledge available and shared amongst stakeholders and down to the provincial level.

This highlighted the interest and the need for an online platform that could share and gather all publications.

In addition to this online platform, participants mentioned the need for organizing forum / workshops involving farmers as well (and not only researchers)

✓ **What are the expectations of the stakeholders towards their participation to ALiSEA network?**

Several ideas, suggestions were proposed by the participants such as:

- To learn from other national workshops on agroecology transition in Mekong region like in Cambodia or in Myanmar
- To draw trends at regional level about agroecology in order to build a broader vision of existing initiatives by highlighting specificities of each countries and to learn from other regional initiatives
- To produce case studies, organize study tours, share experiences, and make information leaflets or newsletters
- To develop strategies in order to reach out to farmers
 - To document agroecological practices in an accessible way to farmers: pictures, movies in order to impact the field.
- To put members of the network at the center → a successful network should be members driven

2.3 A contribution to the way forward...

✓ **Launching the small grants facilities**

2 Small Grant Facilities will be launched shortly with different objectives as described in the PowerPoint (shortly available on ALiSEA website):

- One managed by CIRAD, aiming at supporting CANSEA members and amounting 320 000 Euros
- One managed by GRET, aiming at supporting ALiSEA members and amounting 210 000 Euros

ALiSEA Network will provide around **22 grants** for **2 years** and **4 countries** (Myanmar, Cambodia, Lao PDR and Vietnam). Grants will preferably be proposed as co-funding, with a **maximum of 10,000 USD**. The objective of the SGF is to provide means to address the issues related to agroecology dissemination, production, market access. It aims at fostering knowledge generation and sharing.

ALiSEA SGF will be launched at the end of the 4 National Workshops on Agroecology Transition in Mekong Region, around June 2016. All details information will be displayed on ALiSEA website.

Interested stakeholders should send a 2 pages concept note with an obligation to produce **2 short “agro-ecological transition stories”** and a brief narrative and financial report.

The concept note should be preferably written in English.

✓ **Learning and sharing events: organizing collective events in the coming months...**

Actions addressing consumer's awareness should be considered since food safety is one of a big concern in Vietnam.

Several kinds of events could be considered according to the target audience and the message that needs to be disseminated:

- **Farmers Symposium:** to give space to farmers for sharing their knowledge and difficulties / challenges. To provide opportunity for hearing farmers' voices. This could be organized in the framework of the Vietnam Farmers' Cooperation Forum or with support from the VNFU
- **Study Tour** to outstanding sites: to invite jointly government departments, teachers and students from universities
- **Joint study** on pesticide use patterns & drivers of pesticide use (and roadblocks to biological control, agro-ecological approaches and pesticide-free management) at national and regional level
- **Joint study** to analyze agricultural policy

Participants have been welcomed to reflect on potential Learning and sharing events to be organized and to submit their propositions to ALiSEA regional coordination unit.

Annexes

II. ANNEXE: CASE STUDIES (POWERPOINTS)

All the case studies presented and listed below are available for download on ALiSEA website (<http://ali-sea.org/1st-national-multi-stakeholder-workshop-addressing-agroecological-transition-in-vietnam/>):

Setting the stage: illustration of challenges & policy making for AE promotion

“Experience on organic winter potato business in conditions of small farmers in Hanoi, Vietnam”, by Science Institute of Rural Development

“Agroecology in Vietnam: 4 Challenges?” by Vietnam Academy of Agriculture Sciences

“A review of policies and public services on agro-ecological rice production: The case of promotion of System of Rice Intensification in Viet Nam” by Oxfam & Thai Nguyen University

Marketing AE products: example of certification process

“Organic Agriculture: Develop Participatory Guarantee System (PGS) A long Organic Product Chain” by PGS Coordination Committee

Experience sharing from the field: examples of AE practices and approaches implemented in Vietnam

"New Pathways: Farmer’s ecological innovations in Lam dong Province" by Dalat University

"Agroforestry for livelihood of small holder farmers in Northern Vietnam" by ICRAF

"Agroecological zoning for extension of climate friendly agriculture in some provinces of Northwest Vietnam" by Pan Nature

"VAC - Integrated System-based Agro-ecology Development" by CCRD

"Rice-Duck farming in Vietnam" by Seed to Table

“Conservation Agriculture as an AE approach” by NOMAFSI

“Traditional wisdom and permaculture knowledge towards agro-ecology transition for Landscape and ecosystem’s sustainability: case study on the FFS efforts of empowerment and development” by SPERI

III. ANNEXES: LIST OF PARTICIPANTS

No	Surname	Name	Position	Institution
1	Dao The	Anh	Director	Centre for Agrarian Systems Research and Development PHANO/CASRAD
2	Tran Manh	Chien	Director	Bac TOM Company
3	Violas	Dominique	GRET HQ backstopping	GRET
4	Pham Thi My	Dung	Director	Rural development Science Institute
5	Nguyen thi Huong	Giang	Project Officer	Gret Vietnam
6	Dr. Pham Quang	Ha	Deputy director of Agricultural Environment Institute	Agricultural Environment Institute
7	Doi Khanh	Ha	Program Officer	Sustainable Rural Development (SRD)
8	Nguyen Thi	Ha	Expert	PHANO
9	Do Xuan	Hanh	Director	ArecA Company
10	Dr Nguyen Lan	Hoa	Biodiversity expert	Vietnam academy of Agricultural sciences (VAAS)
11	Đỗ Thị	Hoa	Project Assistant	Seed to table
12	Luong Thi	Hoan	Department of Science & International Cooperation	Vietnam Academy of Agricultural Science
13	Pham Van	Hoi	Executive director	Center for Agricultural Research and Ecological Studies (CARES), Vietnam National University of Agriculture
14	Kyu	Htet	ALiSEA Myanmar	GRET
15	Nguyen Ngoc	Hung	Project Manager cum National Manager	ADDA
16	Phan Thi Bich	Huong	Communication Officer	PanNature
17	Hà Thị Thanh	Huyen	RAF	Gret Vietnam
18	Dang To	Kien	Program Coordinator for Research and Publication	Social Policy Ecology Research Institute, Vietnam (SPERI)
19	Wickhuys	Kris	Asia cassava entomologist	CIAT
20	Dr. Nguyen	La	Soil and agroforestry scientist at ICRAF-Vietnam	ICRAF
21	Dr. Cao Thi	Lan	Head of agronomic faculty	Dalat University
22	Nguyen Hoang	Linh	FAO Programme Officers	Food & Agriculture Organization
23	Nguyen Duc To	Luu	Manager in Resource Governance	PanNature
24	Nguyen Ngoc	Mai	SRI expert	CASRAD
25	Ino	Mayu	Country director	Seed to table
26	Le	Minh	Global advisor in Vietnam, SRI	Oxfam
27	Pham Duc	Minh	Interpreter	

28	Phan Văn	Ngọc	Science Council President	CCRD
29	Phan Thi Kim	Nhung	Programme Officer	SAFE VEGETABLE CHAINS & PGS PROJECT - VECO MEKONG
30	Từ Thị Tuyết	Nhung	PGS Coordination Committee Director	PGS Coordination committee
31	Nguyen Huu	Ninh	Country director	GRET
32	Girard	Philippe	Regional Director	CIRAD
33	Cao Van	Philippe	ACTAE coordinator	CIRAD
34	Prof. Hoang Van	Phu	Associate Professor, Vice Dean, International School, SRI network	Thai Nguyen University
35	Nguyen Duy	Phuong	Officer	Soils and Fertilizers Research Institute
36	Ferrand	Pierre	ALiSEA regional coordinator	GRET
37	Jacquemot	Pierre	President	GRET
38	Hà Thanh	Qué	Interpreter	
39	Dr Luu Ngoc	Quyên	Vice Director	Northern mountainous Agriculture and Forestry Science Institute (Nomafsi)
40	Dr Pham Thi	Sen	Agroecology expert / Cansea focal point	Northern mountainous Agriculture and Forestry Science Institute (Nomafsi)
41	Dr. Phan Due	Thanh	Lecturer	Hanoi National Education University
42	Pham Van	Thanh	Director	Center for Rural Communities Research and Development (CCRD)
43	Benoit	Thierry	Country Programme Manager Asia & Pacific Division	IFAD
44	Dr. Tran Thi	Thuy	Head of the Department of Biotechnology and Microbiology Faculty of Biology,	Hanoi National Education University
45	Prof. Pham Thi	Thuy	Vice President VOAA / Senior lecturer HNUE (Biopesticide & Organic Agriculture)	Vietnam Organic Agriculture Association (VOAA)
46	Huynh Thi Diem	Thuy	Secretary	Gret Vietnam
47	Prof. Bui Quang	Toan	CAEV Director & VietDHRRA Chairperson	CAEV/VietDHRRA
48	Vu Dang	Toan	Head of Science Technology Dept, Organic	Plan Resource Center
49	Vu Le Y	Voan	Vice - Director of VNFU International	Vietnamese Farmers Union (VNFU)

IV. ANNEXES: WORKSHOP PRESENTATION EXTENDED ABSTRACTS

Setting the stage: illustration of challenges & policy making for AE promotion Agroecology Approaches and Practices in Farmer Field School, Metta Foundation

(1) Experience on organic winter potato business in conditions of small farmers in Hanoi, Vietnam

Ms Pham Thi My Dung, Professor and Dr from SIRD

Problem: Ha noi as Viet nam are promoting winter season to supply more more foodstuff for market and increase health for cultivate land but in winter season up down more and more by year because that income from winter season is very lower in comparison with other activities in Ha noi. For contribute to Hanoi city for solve problem, Science Institute of Rural Development carry out the research topic “Research solutions for developing winter crops in Ha noi” concerning to small farmers of city. One of suggest is promoting safety, Viet GAP, organics winter crops. The Experience to demonstrate roles of organizing and building capacity for small farmer in Organic agriculture of small farmers for domestic consumers. The experience include all activity of business process-production, store, sell...

Choosing potato because that potato is one of some targeting winter crops of Ha noi. The experience carried out in Thuong phuc village, Dong phu commune, Chuong my district, Hanoi city. Potato is new crop here because that potato not yet has cultivated before. Moreover, some other experiences in potato in other communes only focused on technical, have not any experience relative to business.

Stakeholders involved: The model is experienced in winter season 2014-2015 by participation between Science Institute of Rural Development (SIRD), Thuong Phuc staff and farmer group, Bactom Shop. SIRD Initiate the model.

Results: The experience carried out in 8.5 sao (about 3,160m²) with 6 steps: involving stakeholder; meeting with stakeholder; select experience place and size; Training farmers on technical, bookkeeping, marketing...;implementing experience; Summarizing. Thought selling slowly, customs is little but the customs believe in trust of farmer group and pay 30,000VND/kg, three time higher than common potato. Beside selling, farmer keep potato seed for next season. Gross margin (from potato selling and potato keeping for seed) about 2.4 millions/sao and 170, 000VND/labor day. Highest success of the model is that small farmers not only know potato technical but also technical, record, marketing, selling of organic potato. Because that in winter season 2015-2016 farmer self produce about 1 ha potato.

Learning: The experience base on farmer demand; farmers participate research with scientists; Capacity building for farmers; business experience instead technical only

Potential bottlenecks: Organic production ask many labor; There is not National organic certification suitable to small farmers; farmers are lacking maintain tolls- most difficulty.

Suggestion: For up scaling organic potato in condition of small farmer it is need to help farmer to maintain products; Support farmers knowledge, postharvest and promoting trade; reducing cost per production unit; more research on organizing small farmers in safety agricultural business for domestic consumers

-Co-Presenter: Dr. Dinah Pham Hein & Pham The My Dung hien_hien1939@gmail.com, Science Institute of Rural Development

(2) Agroecology in Vietnam: 4 Challenges?

Dr Pham Quang Ha, Institute for Agriculture Environment

(3) A review of policies and public services on agro-ecological rice production: The case of promotion of System of Rice Intensification in Viet Nam”

Dr Hoang Van Phu, Ms Le Nguyet Minh, Dr Dao The Anh, Oxfam & Thai Nguyen University

Vietnam exports a fifth of the rice traded worldwide, and yet millions of its rice farmers grow barely enough for their subsistence. They are highly vulnerable to external influences and shocks, especially to climate change and the volatile prices of paddy and agricultural inputs, the latter prices getting very high. Meanwhile, public policies and extension services often overlook farmers’ needs and rely on prescriptive, top-down approaches that do not improve farmers’ adaptive capacities or collaboration among actors along the rice supply chain. Meanwhile, input supply services have been privatized, creating incentives and extension efforts that drive farmers toward excessive use of chemical fertilizer and crop-protection inputs. Moreover, current rice production is highly input-dependent and is a high carbon emitter, also producing other greenhouse gases. All costs considered, Vietnam rice production is extremely costly.

Viet Nam government has promoted a range of rice practices such as System of Rice Intensification (SRI), 3 reductions-3 gains, and 1 must-5 reductions. It is reported that SRI is adopted partially or fully by more than 1.8 million farmers in nearly 395,000 hectares by 2014. However, there are obstacles in expanding production area and attracting larger numbers of farmers. This paper reviews a variety of policies and public services that could promote or restrict adoption of SRI and similar agro-ecological practices. It also reviews evidence on the possible contributions that SRI practices can make to building greener and more agro-ecological rice production in Viet Nam.

The paper proposes that it is critical to improve policy targeting and to invest in agricultural extension oriented toward agro-ecological production. It is necessary also to coordinate the policies along the value chain, including farmer organizations, post-harvest value-adding, and marketing as well as building awareness of and support by consumers. These investments can bring direct incremental profits as farmers are incentivized to adopt better practices, with increased contributions to food security and environmental gains.

Marketing AE products: example of certification process

(4) Organic Agriculture: Develop Participatory Guarantee System (PGS) A long Organic Product Chain”

Tu Thi Tuyet Nhung, PGS Coordination Committee

The PGS is a quality assurance system already established more than 50 countries around the world. PGS in Vietnam has established in 2008 under ADDA project not only guarantee the credibility of the organic produce, but also are crucially linked to local and alternative marketing through a supply chain. Just like third-party certification systems, PGS shown appropriate for small-scale producer aim to provide a credible guarantee for consumers seeking organic produce.

To create sustainable development to guarantee organic quality, PGS organize a supply chain from production to consumption. The actions include a network of organic farmers, retailers, consumers, NGOs, local government agencies ect...are involved in realizing supply chain from production, post harvest, and sales. To set up a supply chain, a managed network of organic farmers need to organize systematically in cooperative or groups to do farming and products need to be certified by PGS to introduce to market with clear regulations especially for trace back to group and exactly farmer who supplied

Without any fund since Sept 2012 when ADDA project ended, PGS Vietnam still has been running with fee from farmers and traders. Currently, the interest of consumers in PGS organic products is growing. From 7,6 ha in 2009 with 11 farmer groups in the North of Vietnam, now there are 27 ha production under PGS focus on vegetable, with 370 farmers of 41 groups and 9 enterprises standing together along products chain. Even the figure is still small but it makes big change of people who are involving in the PGS, especially a stable higher income for small farmers.

PGS has now become a tool for quality management with its 3 main benefits: (1) Go along supply chain, PGS provides a marketing tool that can be trusted by consumers because it has clearly defined standards with documented and transparent compliance procedures from farm to table that are culturally appropriate.; (2) Along supply chain, PGS provides consumers with a certification and logo that can be trusted as it get involve of consumers and other stakeholders taking part in guarantee by participating in farm inspections and sharing in decision making; (3) PGS not only encourage farmer to produce quality products for a better health but also improve community relationships, capacity building and empowerment for farmers and retailers, market integration, improved local governance and reduced subsidies from the government.

PGS Vietnam started in Hanoi now is being scaled up slowly in some areas from the North to the South and the Middle of Vietnam. However, it has not yet officially recognized by government. PGS link farmers, consumers and others stakeholders come together, sharing a vision to improve unbalance ecosystem of misusing chemical, as well as to contribute on solving food safety issues for a better life.

Experience sharing from the field: examples of AE practices and approaches implemented in Vietnam

(5) New Pathways: Farmer's ecological innovations in Lam dong Province

Cao Thi Lan, PhD, Dalat University

(6) Agroforestry for livelihood of small holder farmers in Northern Vietnam"

Nguyen La& Delia Catacutan, ICRAF

In Northwest Vietnam, rain-fed cultivation is dominated by monoculture maize, upland rice and cassava on sloping lands. The loss of topsoil during the rainy season leads to a reduction in nutrient and crop yield. Farmers have to invest heavily on chemical fertilizers to maintain maize yield. Harsh weather conditions exacerbate crop losses, making soil and water conservation even more difficult. To address these challenges, agroforestry systems are deemed suitable to reduce dependence on monoculture maize production, diversify income sources, and increase overall farm productivity. Ten agroforestry systems have been tested in

six districts of three provinces, namely Dien Bien, Son La and Yen Bai. The systems' components include timber and fruit tree species, annual crops and forage grasses. By its complex nature, agroforestry benefits are generally observed longer than other technologies or practices. However, some elements or components may show promising results early in the trial, e.g. forage grass strips established along contour lines serve as soil erosion barriers and animal feed, grafted fruit trees had started bearing fruit after 3 years of the trial, giving good fruit quality. The three-year old agroforestry system with Late fruiting longan - Maize - Forage grasses has shown that income can be steadily earned from maize and forage grasses while conserving soil and water resources. In 2015, soil loss was recorded at 20 tons/ha compared to 34 and 36 tons in monoculture longan and maize, respectively. This is equivalent to soil nutrients saved as follows: 140 kg for N, 20 kg for P, and 120 kg for K (equivalent to 250 USD). In the area higher than 800 MASL, the system Son tra (*Docynia Indica*)-forage grass has also shown promising results. Grafted Son tra trees bear fruits after three years compared to five years if grown from seeds. From the second year, the system can provide up to 60 tons of grass biomass. The net profit was approximately 46-50 million VND per ha per year, during the first three years of the experiment.

Various workshops, farmer field days, and field visits have been conducted to demonstrate the initial results of the trials; as a result, the provincial governments recognized the value of the project, and continue to seek opportunities for meaningful collaboration. From experimental plots, the trialed agroforestry systems have been scaled up at farm and landscape levels through farmer demonstration trials (FDT) and exemplar landscapes. The aim was to introduce agroforestry at the landscape level, to encourage decision makers to create an agroforestry strategy for the provinces. In Huoi Tan, in Mai Son district, a 50-hectare exemplar agroforestry landscape has been established, of which 22,000 trees are to be planted. Species included longan, mango, plum, pomelo, and lemon. Forage grasses were planted along contour lines in sloping maize fields to produce animal feed and control soil erosion.

Agroforestry provides a wide range of benefit. When managed properly, it enhances crop yields, while tree litter add biomass and the roots provide soil anchorage, preventing erosion. Successful agroforestry practices also diversify products and increases incomes for farmers. Additionally, agroforestry provides essential ecosystem services such as carbon sequestration, biodiversity conservation, reduction of wind and water erosion, soil enrichment, and improves the micro-climate. Farmers' interests and participation is an important element throughout the project and ICRAF's work.

(7) Agroecological zoning for extension of climate friendly agriculture in some provinces of Northwest Vietnam

Nguyen Duc ToLuu, Phan Van Thang, Dang Xuan Truong, Pan Nature

Agroecological zone is a wide concept which zoning can be conducted at different levels from small areas in a commune up to international regions. The basis for agroecological zoning are the combination of natural ecological conditions (such as topography, climate, soil, hydrology) and current agriculture systems and practices of targeted areas. Therefore, zoning can be used as an approach for orienting, designing agriculture intervention actions in these areas in order to fit them to specific local conditions.

Project "*Climate Change and Ethnic Minorities In Northern Vietnam*" is implemented by a joint actions of PanNature and ADDA (Danish Agency for Agriculture Development) together with Farmer Unions of Son La and Lai Chau provinces and the Fund for Woman Development of Dien Bien district. The project has conducted a baseline assessment in 3

provinces Son La, Dien Bien and Lai Chau to define agroecological zones of the targeted project areas. The zoning is further being used to design corresponding agriculture extension activities at village and commune levels.

Agroecological zoning: Project targeted areas includes 5 districts of Son La province, 3 districts of Lai Chau province and Dien Bien district of Dien Bien province. Field survey has been conducted in the districts and 26 selected communes of the districts. Interviews of commune agriculture officers, village leaders, households and focus discussions of farmer groups were the methods of the survey. Information was collected related to natural conditions of the areas, impacts of adverse weather and climate abnormalities on agriculture production, current practices of main crops. The surveyed information serves as basis for agroecological zoning and further intervention.

Division of agroecological zones of the areas and their main features are defined as following:-

Three zones in Son La province: (1) Na San highland: includes Son La city and most of Mai Son district. The place is a flat highland area where field rice is grown as the main crop. Rice intensification is relatively high. In the hill bases maize and coffee are cultivated; (2) Northern mountainous zone: includes areas of Thuan Chau and Muong La districts in the North of the province. The zone is characterized by mountainous landscape. On the slopes maize is mainly cultivated together with fruit trees and cassava. The soil of the zone still remains good natural fertility. Therefore, manual soil preparation method is usually used for maize sowing. Pesticides are used at a moderate level; (3) Southern mountainous zone: especially in Yen Chau district where large area of hills are cultivated by maize. Intensive maize cultivation in the zone lead to degradation and erosion of the soils. This consequently results in more mechanical method applied for soil preparation on maize fields. Pesticides are used widely and overused in many cases.

Two zones in Dien Bien district: (1) Dien Bien valley: The zone has a flat character with many rice field. Maize is also cultivated at alluvial areas or hill bases. Rice cultivation in Dien Bien is from a long time ago but the level of intensification is still low. Direct sowing is still common practice; (2) Belt zone: The area around Dien Bien basin is characterized by hills and slopes. Main crop is maize, cassava and dry rice field. The soil in area is also degraded and eroded. Cultivation techniques remain simple and extensive.

Two zones Lai Chau province: (1) Flat lowland: including Lai Chau city, Tam Duong town. The zone is flat lowland areas, main crop is field rice and maize in alluvial sites, hill bases; (2) Mountainous areas: including Phong Tho district and most part of Tam Duong district. Main crops are maize and cassava.

Selection of extension activities on climate friendly techniques: Based on the agroecological zoning the project defines that there are 2 main typical landscapes for selection of suitable agriculture techniques applied with the aim to improve climate change adaptability of the areas: (1) SRI for valley, alluvial lands: for flat valleys and areas along rivers techniques of SRI for rice cultivation is selected to be promoted through agriculture extension; (2) Sustainable maize cultivation on slope lands: for slope areas on the hills techniques of sustainable maize cultivation is selected. The techniques include intercropping maize with legume, grasses or agroforestry.

The extension activities for the techniques are conducted through Training of Trainer (ToT) of local facilitators (LFs) followed by Farmer Field Schools (FFSs) in the selected villages.

Climate Change Responed Agriculture Indices: For promoting application of climate friendly agriculture techniques it is essential to have the role of local government in planning of agriculture in their places. In order to help local authorities integrate climate change issues in their local policies and plans on agriculture the project propose a set of indices assessing status of local actors (province, district and commune authorities) in responding to climate change. The indices will cover both adaptation and mitigation aspects of agriculture production of the levels as well as the readiness of local stakeholders in climate change responds.

Relevance, representativeness and measurability of the indices are defined in accordance with the agroecological zoning in the targeted areas.

The indices will be consulted with commune and district officers and representatives of village farmers. Through the consultation awareness of the officers on climate change issues will be improved. The indices can also be used for the authorities in their planning agriculture production integrated with climate change responding actions.

(8) VAC - Integrated System-based Agro-ecology Development

Pham Van Thanh & Phan Van Ngoc, CCRD

In Vietnam, a country of small-scale farmers, an integrated farming system called VAC rapidly gains great interest during the last thirty years. Although their plots are small, most farmers can achieve surplus for the market from six months to two years after starting the work. VAC primarily aims at improving the nutrition of rural households by helping to restore the traditional system of household food production, or, to be more accurate, a system of horticulture based on local tradition but incorporating updated techniques and crop varieties wherever appropriate. It advocates the adoption of an ecological system of horticulture, in which gardening, fish-rearing, and animal husbandry are integrated to achieve sustainable agricultural development (Nguyen Ngoc Triu, 1994). The particular products cultivated and the techniques employed are matched to the physical and social demands of the local environment. VAC is acronym formed from the three Vietnamese key words: namely 'Vuon' stands for garden or orchard; 'Ao' means fish pond; and 'Chuong' means animal shed (pigsty, poultry shed).

The basic design: First a hole is dug in the ground. The soil from the hole is used for the foundations on which the house and the animal sheds are built and to raise garden beds. House and gardens need to be protected from rising water, as the Red River Delta is flooded each summer. Rainfall and the high water table turn the hole itself into a pond. In this way a small area is created where animal husbandry, gardening and fish rearing can be combined adjacent to the house.

Crops and trees are grown in the garden in a bio-intensive way without the use of chemicals. Various species are intercropped and overlapped to make full use of moisture, solar energy and soil nutrients. Fruit trees are interspersed with vegetables, beans and tuber crops which grow in the shade. Other legumes are grown along the edge of the garden and timber trees and rattan are planted to form green fences.

A variety of fish is reared in the pond, so that food resources are fully used at different water depths. Taro is planted around the pond and marsh-lentils cover part of its surface. Gourds are grown on the trellis just above the water.

Pigsty and poultry shed are situated close to the pond. Pig manure is used for plant and fish food and various garden products are used to feed the livestock and fish. During the dry season, the pond provides nutrient-rich water and sludge to irrigate and fertilize the garden.

The whole VAC system is operated by the farmer's family. They consume or sell the products and in return they contribute organic waste to the system. As the VAC system is very labour intensive, it provides productive employment for people of all ages because hard manual labour is not required.

VAC farming allows women to work in a healthy environment close to their home and children, instead of going to distant rice fields or construction works.

The technique of VAC principally bases on a recycle strategy. Recycling of solar energy through photosynthesis of plants and of plant residues to make environment clean. Solar energy through photosynthesis is recycled under the form of energy containing in plant products which are used as food for people and cattle, firewood and materials for small-scale industry, wastes (rubbish, people and animal dung) are composted and put into use for new processes. Thus, VAC actually works as small-scale bio-intensive farming models where Gardening, Fish rearing and Animal husbandry are closely integrated, making the optimal use of land, water and solar energy to achieve high economic efficiency with low capital investment.

Modifying VAC: The original VAC model has been modified to suit Vietnam's three principal ecological regions: namely the coastal area, the deltas, and the foot-hills and mountains. Further modifications are being made to suit particular conditions, such as in cyclone-susceptible dune areas.

In the Northern Red River Delta, farmer house is normally surrounded by garden and pond while animal shed is near the pond with a composting heap to produce organic fertilizer while in the Mekong Delta, farmers dig canals around and between their gardens to achieve better drainage and to wash salt from the soil. Fruit trees grown here are selected according to their suitability to water quality and soil type. On land close to the coast, coconut palms are intercropped with e.g. rambutan, mango, citrus, bananas, guava, pineapple etc. A little further inland, citrus species dominate and are intercropped with coffee, cacao and pepper plants.

In the coastal areas a typical VAC garden is bordered by a row of *Casuarina equisetifolia* acting as a windbreak, hindering drifting sand and filtering salt. Other trees and rattan are densely planted on mounds built up around the garden as protection. Within the garden, a variety of fruit trees is grown. Fish and prawns are raised in brackish ponds and canals.

In the foothills and mountains the higher and steeper slopes are covered with timber trees intercropped with Nitrogen-fixing plants and trees. Further down the slope timber trees are mixed

with coffee or tea or with fruit trees such as apricot, plum, persimmon and longan. Peanuts, pulses, medicinal herbs and tuber crops are planted underneath. A series of small ditches and contour banks are built along the slopes to prevent erosion. Pineapples are often grown along the contour banks. Near the foot of the hill, close to the house, the vegetable garden, animal shed and fish pond are situated.

Stakeholders involved and scalability: Being founded since 1986, Vietnam Gardening Association (VACVINA) – a nationwide organization acts as the leading agency to promote the system. VACVINA has its institutionally vertical structure with more than 150,000 member families, and branches in 61 out of the total 64 provinces in the country. Through the gradual evolution, VACVINA has been able to help communities not only to develop and expand their subsistence agricultural activities but to integrate these activities into the wider economic system in order to be able to generate income from surplus produced. VACVINA therefore receives huge support from government agencies, mass- organizations, the civil society and various international organizations such as ActionAid International, UNICEF, Quakers Service Australia, etc.

Government departments at each and every level are in support VAC diversification in order to realizing official state policies relating to health, environmental protection and rehabilitation, and the alleviation of poverty. Effective links have been established with mass organizations in the communities to facilitate adoption of VAC initiatives. It has helped strengthening local networks for mobilizing additional resources to facilitate local activities.

With the new policy of the Government of Vietnam to encourage promotion of family self-reliance and income, the VAC movement is increasing strongly and playing an important role in improving people's life as well as in diversifying Vietnamese agriculture and protecting natural resources and the environment to ensure sustainable development.

Results, impacts and lessons learnt: VAC system appears to have produced a diversity of easy-to-grow nutritious vegetables, fruits and animal proteins it is a very effective approach to combat malnutrition and increase income. Research has shown that in many communities in the Red River Delta where VAC farming is first practiced, income from VAC constitutes 50-70 percent of farmers' income. Annual income through VAC farming is three to five times higher than that derived in the same area from growing two rice crops per year.

Moreover, farming families who have adopted VAC models have not only been enabled to develop and expand their subsistence farming activities but also to integrate these activities into the wider rural economic system in order to be able to generate income from surplus produced. In such the socio-economic transition typically characterized by the rapid shift into specialization and increased agrochemical use in Vietnam, it potentially illustrates the important role that VAC models would play in enabling farming families through introducing into practice and making the best use of innovative technologies and also facilitate sustainable and environmental friendly growth of innovative income-generating activities.

Though with successes in forms of economically, socially and environmentally beneficial aspects and involvement of farmers as well as other development actors, any scalability indeed relies on the diffusion of VAC horticulture as a means of improving household nutrition and food security in rural areas. By far, different provinces and districts have different approaches, and varying degrees of success, in encouraging farmers to adopt VAC horticulture - success in this respect has required the ability to mobilize resources to provide training courses and study tours on VAC techniques, to carry out sufficient extension work, and to supply technical services to members.

Three Recommendations for policy: (1) Conserving biodiversity and traditional farming techniques in the face of intensive farming trends; (2) Coping with such issues concerning adverse impacts of climate change currently threatened the sustainable agriculture development, e.g. losses of ecosystems and increased scarcity of water resources, salt water intrusion etc (pond in VAC system acts as water reservoirs); (3) Addressing social issues concerning under-employment that keep rural communities under poverty.

(9) Rice-Duck farming in Vietnam

INO Mayu, Seed to Table

Hoa Binh province: Rice-duck integrated farming is a traditional cultivation method which is closely associated with wetland cultivation in Tan Lac district. Since a long time ago, Muong people have known to combine rice cultivation and duck raising to increase the incomes and improve life quality. Most of ducklings were released after the first weeding or the flowering stage, therefore, their role of weeding and insect elimination was not clear. Farmers often had to do weeding 2-3 times and apply chemical pesticides to prevent insects and diseases on rice.

Farmers were afraid that after releasing ducklings in the paddy fields, ducklings would destroy or eat paddies. In order to avoid this problem, when rice plants started to produce panicles, farmers had to keep ducklings in the shelters and released them again after the first weeding in the next crop. Hence, they could only raise ducks for one time on two-crop rice paddies.

In 2004, Rice-duck model was introduced to Muong people in Dich Giao commune, Tan Lac district. After implementing the model in Dich Giao commune, villagers found some positive results as follows:- Ducklings density: 25-30 ducklings/1,000 m², higher intensity may decrease rice yield; The best transplanting density: 30-35 clumps/m² which reduce labor for transplanting and amount of seeds; higher plant density may limit ducks' ability of collecting food (the previous normal density was 45-50 clumps/m²); 2-week old ducklings should be

released after transplantation has finished in 2 weeks; Ducks made soil muddy by ploughing and farmers did not need to weed; Farmers don't use chemical fertilizer or pesticides if they want to take a good care of ducks; Rice productivity increased by 5-18 % or up to 30 % as rice seeds become more fertile; Keeping ducks at the paddy field in the whole days and nights brings more effectiveness than just keeping in the daytime; Harmful insects and mouse for paddy might be eliminated by more than 90%, ensuring the ecological balance in the paddy fields; Evaluation of rice qualities of Rice-duck method is not available; therefore, the rice price has not been significant difference between conventional method and Rice-duck method.

The result in Tan Lac district showed that Rice-duck Farming has economic and environmental advantages to develop sustainable agriculture. Currently, many Muong people continuously apply this method and Rice-Fish Farming model to get higher economical profit and contribute for sustainable production in mountainous area.

Hai Phong province: Since 1994, Hai Phong was the first province in the country that applied the Rice-duck farming and succeeded. The purposes and meanings of applying this method in Hai Phong are:- Promote usage of compost, minimize the application of chemical fertilizer, pesticides and herbicides, plant growth promoters in order to protect environment; Reduction of the channeled apple snail; Produce safe agricultural products that protect human health; Increase crop and animal yields, save production cost, increase income for farmers; Contribute to free women from hard work like weeding, mud stirring.

Hai Phong has 10 districts working in agriculture; all of them have had practiced Rice-duck farming. Since 1994, Hai Phong has organized more than 100 training courses, over 12,000 households applied this method with 300 ha paddy fields. The main result of applying Rice-Duck Farming were:- Ducklings density: 50 ducklings/1,000 m²; The best transplanting density: 25-30 clumps/m² which reduce labor for transplanting and amount of seeds; 10 days old ducklings should be released after transplantation has finished in 10-14 days; Ducks made soil muddy by ploughing and farmers did not need to weed; Rice productivity is same as conventional one.; Keeping ducks at the paddy field in the whole days and nights brings more effectiveness than just keeping in the daytime; Harmful insects for paddy, especially the channeled apple snail, were eliminated clearly, ensuring the ecological balance in the paddy fields; According to farmers, the rice quality of Rice-duck method was better than conventional one.

The challenges which farmers faced are:- The price of rice. They tried to sell Rice-Duck Farming Rice with higher price, but it was not succeeded.; In winter spring crop, there is often severe cold wave which kills many ducklings; A stable output for safe rice is unavailable. The selling price of rice is low and it does not encourage farmers to apply this model; Due to urbanization, many farmers cannot continue farming; Threat of Bird Flu.

Farmers in Hai Phong continue to apply Rice-Duck Farming and try to introduce 'clean rice' to consumers.

Ben Tre province: This Province is located in the Mekong Delta and famous in coconuts cultivation. Traditionally, people in Ben Tre Province planted rice, but recently, intensive shrimp farming have been applied widely. Ben Tre Province is seen as one of the most seriously affected provinces by Climate Change in Vietnam. In 2016, most of paddy field in Ben Tre Province was destroyed due to salt pollution and farmers lost harvest. Also, there is no fresh water serving for daily life and agricultural production. Farmers have changed and diversified their farming system to adapt the production to climate change and secure their life.

Rice-Duck Farming was introduced to farmers in Binh Dai district, Ben Tre province in 1996. Until early 2010s, this method was widely applied over 600 ha of paddy field in Binh Dai district. The main result of applying Rice-Duck Farming were as follows:- Ducklings density: 25 ducklings/1,000 m²; Farmers in Ben Tre usually apply direct-sowing; 10 days old ducklings should be released after transplantation has finished in 14 days; Ducks made soil muddy by ploughing and farmers did not need to weed; Rice productivity is almost same as conventional one.; Could reduce the use of chemical pesticides by 40%; Saved 200,000 VND/1,000m² of labor force for manual weeding; Harmful insects for paddy, especially Brown plant hoppers, were eliminated clearly, ensuring the ecological balance in the paddy fields; According to farmers, the rice quality of Rice-duck method was better than conventional one; They can sell Rice-Duck Farming Rice as clean rice with 15-20% higher price than conventional one.

Farmers in Binh Dai district innovated another unique integrated method. It is Rice-Duck-Shrimp Farming. After rice harvest, farmers noticed the appearance of shrimp in their fields. They started the idea to raise shrimp, fishes in addition to the duck in the rice field. Farmer released fishes that have feeding habit in the bottom layer of water so that the ducks cannot feed them. Thanks to the tide which leads natural fishes and shrimps into the paddy field, it costs rice grower less for fish's breeds. Farmers now are benefited from three or four products in one system instead of two as before.

In 2016, Seed to Table starts collaboration with farmers and academics from Can Tho University to conduct trial of Rice-Duck-Azolla-Fish farming model in Binh Dai district. The result of trial will show how Rice-Duck-Azolla-Fish farming contributes to reduce emission of methane gas.

(10) Conservation Agriculture as an AE approach

Pham Thi Sen, NOMAFSI

(11) Traditional wisdom and permaculture knowledge towards agro-ecology transition for Landscape and ecosystem's sustainability: case study on the FFS efforts of empowerment and development

by Kien Dang, SPERI

